Application No. 09/782,807   Docket No. 22-0123

REMARKS

Claims 1-28 were submitted for examination. Claims 1-12 and 15-28 were rejected on various grounds in the aforementioned Office action, and claim 28 was objected to. Applicant notes with appreciation the indication of allowability of claims 13 and 14. By this amendment, the rejected claims have been amended to distinguish the invention more clearly over the cited and are submitted for reconsideration and reexamination in light of the following remarks. Claims 13 and 14 have been rewritten in a form independent of the rejected claims and should, therefore, be allowable without further substantive examination.

In section 1 of the Office action, claim 28 was objected to for having two periods at the end of the claim. Appropriate correction has been made and an additional typographical error has been corrected.

In sections 2 and 3 of the Office action, claim 7 was rejected under 35 U.S.C. §112, first paragraph, for allegedly failing to comply with the written description requirement. In particular, the recitation of "and sending the remnant packet" in line 4 or the original claim was said to be not adequately disclosed in the application. Claim 7 as originally drafted was apparently ambiguous because the Examiner has construed it differently from its intended meaning. The entire phrase in question is: "sending the original data packet without constructing and sending the remnant packet." The Examiner is apparently reading this phrase such that the word "without" modifies the word "constructing" but not the word "sending" and is regarding the phrase "sending the remnant packet" as a separate step, for which the Examiner finds no support in the context of the condition recited in claim 7 ("when the address field ....")

The intent of claim 7 was that the word "without" should modify the entire following phrase, "constructing and sending." This is consistent with the disclosure, which, as the Examiner observed, shows sending the original data packet (as in block 425), without constructing and without sending the remnant packet, if the recited condition is met. A simple correction is to delete the words "constructing and sending," so that the offending phrase reads "sending the original data packet without the remnant packet." This amendment is believed to obviate the rejection under 35 U.S.C. §112, first paragraph. Reconsideration of the rejection is respectfully requested.

In sections 4 and 5 of the action, claim 4 was rejected under 35 U.S.C. §112, second paragraph, for the recitation of "the first data information" in line 3 of the original claim, without providing sufficient antecedent basis for this term. Claim 4 has been amended to recite "inserting a second portion of the original data packet routing information in the data field of the subsequent remnant packet." Therefore, the claim is no longer subject to rejection under 35 U.S.C. §112, second paragraph, and reconsideration is respectfully requested.

In sections 6-8 of the Office action, claims 1, 8, 17, 19 and 22 were rejected under 35 U.S.C. §102(e) as allegedly anticipated by Woodward et al. (US 6,151,318). The Woodward patent discloses a technique for encapsulating ATM cells in a broadband network. The Woodward disclosure addresses a problem that arises when fixed-length (53-bit) ATM cells or packets must be transmitted over a network that has packet sizes greater than the ATM packet size. In particular, the problem addressed is one in which the packet size of the network is at least double that of the ATM packet size. Encoding one ATM packet in each network packet of more than twice the ATM

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packet size obviously makes inefficient use of the network bandwidth. Accordingly, the

Woodward patent suggests a solution to this problem, whereby, in a preferred

embodiment of the invention, two ATM packets of 53 bits each are placed in a packet

payload segment of 106 bits. Additional header information is appended to this double-

ATM payload and the entire header and payload is transmitted as a single packet on the

broadband network. This principle is depicted in FIG. 1, for example.

FIGS. 2 and 3 of the Woodward patent depict variations of this basic scheme,

whereby ATM cells may be compressed by some means such that they occupy less

space in the 106-bit payload of the broadband packet. One discussed technique of

compression is header compression, wherein redundant portions of packet headers

may be omitted if consecutive ATM cells have a common destination.

The present invention has a fundamentally different purpose from that of the

Woodward invention. The invention addresses a problem that arises when ATM cells

must be transmitted over an intermediate network that also uses the standard ATM

packet size, but which uses an internal routing scheme that is incompatible with the

external network from which the original ATM data packets are derived. In particular, the

internal routing technique used in the intermediate network may be designed to reduce

the amount of memory required in onboard satellites, but at the expense of using

additional address space in the communicated ATM data packets. In such a technique,

the address routing fields known as the virtual channel indicator (VCI) and the virtual

path Indicator (VPI) fields may be dynamically modified by the intermediate

communication network, rendering these fields unusable to the external networks

coupled to each side of the intermediate network. The present invention solves this

problem by creating an intermediate or remnant packet, having the same standard

(such as ATM) fixed-length format but characterized by having at least a portion of the

original data packet address or routing information stored in the data field of the

remnant packet. Thus, the present invention provides a different solution to a different

problem from that addressed by Woodward.

Accordingly, claim 1 and the other independent claims have been amended to

emphasize this distinction from the Woodward patent. Specifically, claim 1 now recites

"a method for sending a data packet through an intermediate communication network

that uses internal routing incompatible with the data packet" and also recites that the

remnant packet has the same fixed-length format as that of the original data packet.

Woodward necessarily has a reconstructed packet length that is more than double the

size of the original data packet. The other claims have been amended for consistency

with these changes. Claims 1, 8, 17, 19 and 22 as amended are believed to be

allowable over Woodward. Therefore, reconsideration and reexamination of the

rejection are respectfully requested.

In sections 9 and 10 of the action, claims 6, 9, 16, 23-26 and 28 were rejected

under 35 U.S.C. §103(a) as allegedly unpatentable over Woodward. The Examiner

argues that Woodward implicitly teaches the features of these claims. Applicant

believes that the claims as now amended are more clearly distinguishable from the

disclosure of Woodward and that, therefore, the claims should be allowable over

Woodward.

In section 11 of the action, claims 2-5, 10-12 and 18 were rejected under 35

U.S.C. §103(a) as allegedly unpatentable over Woodward in view of Braff et al (US

5,166,930). The latter reference is relied on to show inserting a first portion of the original data packet data information in the remnant packet data field. The Examiner points to FIG. 3 as showing a portion of an original data packet being inserted in a "remnant" packet. The Braff patent, and in particular FIG. 3, is in part concerned with interfaces between "backplane" communications, which may use a data format standard such as ATM, and a communications trunk, which typically uses time division multiplexing (TDM) as indicated in FIG. 3. In this context, longer message packets, such as message 305, have to be distributed among several shorter time slots, such as TS1, TS2 and TS3. In the process of this distribution, of course a portion of data from the "original" data packet will be inserted into a data packet of different length. This, however, has little or nothing to do with the present invention.

In the present invention, as now more particularly claimed, an original data packet is transmitted through an intermediate communication network by constructing a remnant packet <u>of the same fixed-length format</u> as the original data packet. Therefore, the teachings of Braff do not apply to the present invention. In any event, it is believed that dependent claims 2-5, 10-12 and 18 should be patentable with the claims from which they depend.

In section 12 of the action, claims 7, 15, 20, 21 and 27 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Woodward in view of Opalka et al. (US 6,259,699). The Opalka patent was relied on in the rejection of claim 7, for example, to show sending the original data packet without constructing a remnant packet, when the address field of the original data packet includes sufficient available space for subsequent routing In an intermediate network. Applicant concedes that the prior art

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may disclose examples of communication networks in which no transformation of data

packets is needed when interfacing between one network type and another and that,

therefore, the claim language added in claim 7 may read on other communication

systems. This analysis, however, considers claim 7 in isolation, without the limitations of

the claim from which it depends. The Examiner contends that Woodward teaches the

other elements of claim 7, but as discussed above, claim 1 as amended (and therefore

claim 7) is not believed to be anticipated or rendered obvious by Woodward.

Accordingly, it is believed that claim 7 and the other dependent claims included in this

rejection , should be now allowable over the cited art.

In view of the foregoing, claims 1-28 are all believed to be allowable over the

cited art. A formal indication of allowability is, therefore, respectfully requested.

Respectfully submitted,

Date: October 1, 2004

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